

## **ABSTRACT**

Disclosed is a system for the detection of cardiac events (a guardian system) that includes an implanted device called a cardiosaver, a physician's programmer and an external alarm system. The system is designed to provide early detection of cardiac events such as acute myocardial infarction or exercise induced myocardial ischemia caused by an increased heart rate or exertion. The system can also alert the patient with a less urgent alarm if a heart arrhythmia is detected. Using one or more detection algorithms, the cardiosaver can detect a change in the patient's electrogram that is indicative of a cardiac event within five minutes after it occurs and then automatically warn the patient that the event is occurring. To provide this warning, the guardian system includes an internal alarm sub-system (internal alarm means) within the cardiosaver and/or an external alarm system (external alarm means). If the guardian system is put into a pacemaker, the algorithm can utilize a different analysis of the electrogram depending on whether or not the pacemaker is actually pacing the heart.